

FABRICATION METHOD of ELECTRO-FORMING MOLD DRAWING-OUT PRODUCTS

What is claimed

1 The manufacture method of the □□□ drawing-out cast which the above-mentioned spacer carries out to the front object of a drawing-out cast □ arrival, and is characterized by coming to unify by equipping with the covering material by the above-mentioned material, carrying out the injection set of this heart material at □□□, and performing necessary drawing-out fabrication while equipping heart material with the spacer made by the same material as the material of drawing-out formation.

Detailed explanation of the invention

The present invention relates to a fabrication process using a reinforcing core material in an electro-forming mold drawing-out fabrication (slash molding), and provides a fabrication method capable of providing a leg of a doll made from a soft synthetic resin with reinforcement heart material etc. in □□□.

Conventionally, the leg of the doll by this □□ mold drawing-out fabrication had the insufficient mechanical intensity of the character top ankle part of a material, and when placing the doll concerned in a standing position, it needed a certain reinforcement for the foot.

When the cast of this elastic material was equipped with reinforcement heart material, according to the conventional method, inserting heart material, such as □□, in the inside of the product after drawing-out fabrication processing was performed.

However, according to this method, since this heart material was not mechanically combined with an ankle part, for example, the said division had the fault which is not fully reinforced.

Although supplying heart material in □□□ before drawing-out fabrication processing was also performed in order to improve this Although heart material should just have been supported by the main position of □□□ according to this method, since it was surely unevenly distributed, it was made difficult to have a fault with heart material exposed to the surface of the product after drawing-out fabrication, therefore to equip this kind of □□□ drawing-out cast with heart material etc. conventionally.

This invention removes the fault of the above-mentioned conventional method, and enables wearing of heart material in □□□ before drawing-out fabrication processing.

That is, using the material of drawing-out fabrication, for example, the same material as an elasticity synthetic resin, this heart material is equipped with a spacer, and this spacer becomes so that the above-mentioned heart material may be stabilized by the method of this invention in the necessary position of □□□ and it may be held.

However, without heart material being exposed to the surface of the product after forming processing, if the injection set of the heart material of a lever is carried out at □□□ and the usual drawing-out fabrication is performed, □ arrival of the spacer for holding this heart material can be carried out to the front object of the product by drawing-out fabrication in one, and it can be unified completely mechanically.

Moreover, it covers with the same material as the material of drawing-out fabrication to the whole heart material, and this invention becomes it so that heart material may not be exposed to the front object of drawing-out fabrication, even if heart material should curve at the time of forming processing.

Even if a part of heart material tends to contact □□□ by curve etc. by [which write] carrying out, this can be prevented by the above-mentioned covering material, and it can prevent completely that heart material etc. is exposed to the product at the time of drawing-out fabrication completion.

The present invention will be described with reference to one embodiment shown in appending figures below.

The figures show a fabrication of a leg of a doll according to the embodiment. In Fig. 1, spacers 2 and 3 are inserted in both ends of a core wire 1, for example, an iron wire, respectively. These spacers 2 and 3 are made up of material used in drawing-out processing, for example, the same material as soft synthetic resin.

Moreover, above-mentioned core wire 1 is provided with a covering material 6 made of the same material as spacers 2 and 3, i.e., the material used for drawing-out fabrication processing. Moreover, since the above-mentioned spacer 3 is provided on a comparatively thick section side of an electro-forming mold, a plurality of projection-like supporting parts 31 are formed on the spacer 3 so as to easily fuse with a front object at the time of drawing-out processing. These supporting parts 31 exists not only to facilitate the above-mentioned fusion but also to facilitate flow of liquid-like material as described below.

Fig. 2 shows a state in which the core wire 1 is inserted into the electro-forming mold 4. In this state, the core wire 1 is held by the spacers 2 and 3 in a required position, for example, substantially along a center line of the electro-forming mold 4. In an inserting process, what needs to be done is just to insert the core wire 1 into the electro-forming mold 4. The core wire is surely set to a required position at the time when the electro-forming mold is filled with the liquid-like material (sol) through a centrifugal force during forming process.

As described above, an ordinary drawing-out fabrication processing is performed. That is, although sols other than fleshing sol is discarded from a filling port after a preliminary fleshing in the drawing-out fabrication processing, abandonment of this unnecessary sols is performed through between the supporting parts 31 of the above-mentioned spacer 3. Then, a primary fleshing is performed, and, in a finished product drawn out of the electro-forming mold 4, the core wire 1 is not exposed outwardly of the front object 5 of the formed product and integrated with an inner portion of the formed product, as shown in Fig. 3. The spacers 2 and 3 for holding this the core wire 1 are integrated with the material of the front object 5.

As explained above, according to the present invention, a drawing-out fabrication processing is performed by inserting a core material having spacers into an electro-forming mold and holding it therein using the same material of the spacers as material of the drawing-out fabrication processing. Thus, the core material is mechanically held reliably inside a finished fabrication product. Therefore, if this invention method is used for fabricating a leg of a doll, an ankle of the doll can be mechanically fully reinforced.

Products requiring a certain degree of mechanical strength have been fabricated using expensive injection molding, however, a method according to the present invention can provide inexpensive products by a drawing-out processing using an electro-forming mold and a core inserted therein.

Brief explanation of the drawings

Fig. 1 is a perspective view showing a core material according to one embodiment of the present invention.

Fig. 2 is a broken perspective view showing a state in which the core material is inserted in a mold.

Fig. 3 is a perspective view showing a state in which a product was taken out from the mold.

In the figures, reference numeral 1 denotes a pacer, reference numerals 2, 3 denote spacers, reference numeral 4 denotes a electro-forming mold, reference numeral 5 denotes a surface object, and reference numeral 6 denotes coating material.

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⑪ 電鋳型引抜成形品の製造方法

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⑰ 特許請求の範囲

1 芯材には引抜成形の素材と同じ素材によつて作られたスペーサーを装着すると共に、上記素材による被覆材を装着し、該芯材を電鋳型に投入セ

発明の詳細な説明

本発明は電鋳型引抜成形（スラッシュモールドイング）において補強芯材等を装着する製造方法に関するもので、たとえば軟質合成樹脂を素材とした人形の足に補強芯材を設ける製造法を提供するものである。

従来、この種電鋳型引抜成形による人形の足は素材の性質上足首部の機械的強度が不足で、当該人形を直立させる場合には足部に何らかの補強を必要とした。

かかる軟質の素材の成形品に補強芯材を装着する場合、従来方法によると、引抜成形加工後の製品内部に鉄線等の芯材を挿入することが行なわれていた。しかしこの方法によると、たとえば足首部に同芯材が機械的に結合されないで、同部が十分に補強されない欠点を有していた。これを改

5 善することは困難なものとされていた。本発明は上記従来方法の欠点を除去するもので、引抜成形加工前の電鋳型内に芯材の装着を可能とするものである。すなわち本発明の方法は上記芯材が電鋳型の所定の位置に安定して保持されるよ

うに同芯材にスペーサーを装着し、かつ同スペーサーは引抜成形の素材、たとえば軟質合成樹脂と同じ素材を用いてなるものである。しかしてこの芯材を電鋳型に投入セットし、通常の引抜成形が行なわれると、成形加工後の製品の表面には芯材が露出することなく、かつ同芯材を保持するためのスペーサーは引抜成形による製品の表体と一体的に熔着し、機械的に完全に一体化することができる。

また本発明は成形加工時に万一芯材が彎曲しても引抜成形の表体に芯材が露出しないように芯材全体に引抜成形の素材と同じ素材によつて被覆を行つてなるものである。かくすることにより、芯材の一部が彎曲等によつて電鋳型に接触しようとしても、上記被覆材によつてこれを防止でき、引

20 抜成形完成時の製品には芯材等が露出することが完全に防止できる。以下添附図に示す一実施例にて本発明を説明する。

図は人形の足の製作実施例を示すもので、同第

30 1図において芯線1、たとえば鉄線の両端部にはそれぞれスペーサー2、3がはめ込まれている。これらスペーサー2、3は引抜加工に用いられる素材、たとえば軟質合成樹脂と同じ素材によつて作られている。

35 また上記芯線1にはスペーサー2、3と同じ素材、すなわち、引抜成形加工に用いられる素材と同じ素材で作られた被覆材6が装着されている、

また上記スパーサー3側は電鋳型の比較的太い断面に設けられるので、引抜加工時にその表体との熔着を容易にさせるために同スパーサー3には複数の突起状の支持部31が形成されている。この支持部31は上記熔着を容易にする目的のほか、

前述の液状の素材の流通を容易に行なわせるためにある。
第2図は上記芯線1を電鋳型4に挿込んだ状態を示す。かかる状態にて芯線1はスパーサー2、3によつて所要の位置、たとえば電鋳型4の略中心線上に保持される。この挿入作業は単に電鋳型4に芯線1を投入するだけでよく、成形加工時における遠心力による液状素材（ゾル）の完全充填時に、ゾルと共に遠心力を受け所要の位置に確実にセットされる。

しかして通常の引抜成形加工が行なわれる。すなわち、引抜成形加工においては第一回の肉付焼後に肉付ゾル以外のゾルは注入口から廃棄され本焼きに移るが、この不要のゾルの廃棄は上記スパーサー3の支持部31の間を通して行なわれる。かくして本焼が行なわれ、電鋳型4から引抜かれた出来上りの製品は第3図に示すごとく成形品の表体5にたいして芯線1が露出することなく、そ

の内部に一体的に装着された形となる。この芯線1を保持するためのスパーサー2、3は表体5の素材に熔着され完全に一体化されている。

以上説明したように本発明は引抜成形加工の素材と同じ素材のスパーサーを用いて、電鋳型に芯材を挿入保持して引抜成形加工が行なわれるので、芯材は成形品の内部に機械的に完全に保持された形となる。したがつて本発明方法をたとえば人形の足の製造に用いると、同入形の足首を機械的に充分なる補強を行うことができる。

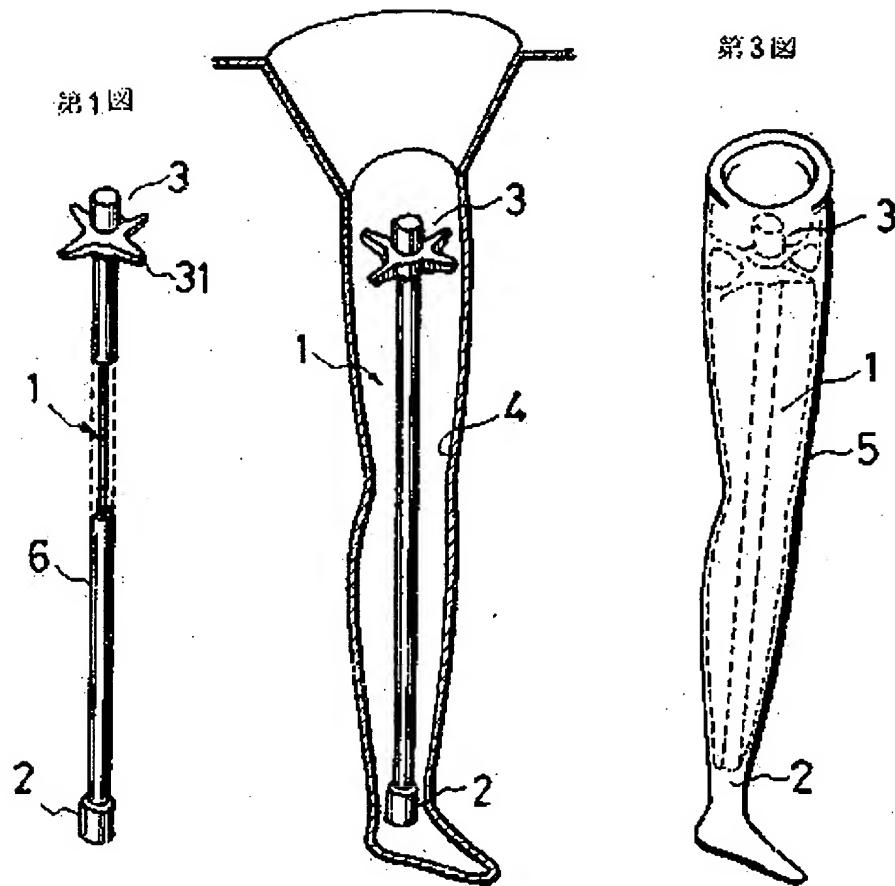
かくして従来この種の機械的にある程度の強度を要求されるものは高価なインジェクションモールドによつていたものが、本発明方法によると、芯入りの電鋳型引抜加工により安価な製品を提供

図面の簡単な説明

第1図は本発明の一実施例を示す芯材の斜視図、第2図は同芯材を型枠に挿入した状態を示す切欠斜視図、第3図は同型枠から製品を取出した状態を示す斜視図である。

同図中1は芯線、2、3はスパーサー、4は電鋳型、5は表体、6は被覆材である。

第2図



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